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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/692,239	10/20/2000	Norman A. Shoenfeld	522.008PA	6796

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EXAMINER

REKSTAD, ERICK J

ART UNIT	PAPER NUMBER
2613	3

DATE MAILED: 02/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/692,239

Applicant(s)

NORMAN A. SHOENFELD

Examiner

Erick Rekstad

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

Claims 1, 2, 3, 6, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,184,217 to Doering in view of US Patent 5,132,791 to Wertz et al.

[claim 1]

In Figure 1, Doering teaches a sheet metal scanner using machine vision for checking the accuracy of openings drilled or punched into a mechanical part (Col 2 Lines 12-20, Fig. 1). The scanner contains a lower assembly, which includes a housing (12). Doering teaches the use of a carriage assembly (22) and can perform movement in two orthogonal directions in a horizontal plane (Col 4 Lines 24-45, Fig. 1). The scanner further includes a flat transparent support plate (Col 3 Lines 57-65, Fig. 1). A camera assembly (30) is mounted on said carriage (22). A planar illuminator mounted above said lower assembly and providing a substantially uniform light over an area coextensive with said support plate (26) (Col 4 Lines 1-3, Fig. 1). The scanner also includes a control means coupled with said carriage assembly and with said camera assembly for guiding said camera assembly in a controlled scanning pattern within said lower assembly housing and processing image data of said part based on lines of pixels produced by said camera assembly imager (150) (Col 6 Lines 54-67, Fig. 1). Doering does not teach enclosing the housing to prevent dust and other contaminants. Wertz teaches the use of enclosing the housing in order to prevent dust from the rather dirty environment of a production line from interfering with the sensitive camera optics (Col 9

Art Unit: 2613

Lines 1-7). It would have been obvious to one skilled in the art at the time of the invention to combine the housing of Doering with the enclosing method of Wertz in order to protect the sensitive camera optics.

[claim 2]

Doering does not teach the use of a polarizing filter. Wertz teaches the use of an Infrared filter between the light and the camera in order to selectively enhance defects (Col 8 Lines 67-68 and Col 9 Line 1, Fig. 3). It would have been obvious to one skilled in the art at the time of the invention to combine the housing of Doering with the filter of Wertz in order to filter the light going to the camera.

[claim 3]

Doering teaches the use of a tube fluorescent lamp (54) in a system for detecting holes in sheet metal (Col 4 Lines 46-48, Fig. 2). Doering does not teach the use of multiple fluorescent tube lamps in parallel. Fluorescent tube lamps and the method of combining multiple tube lamps are well known in the art (Official Notice). It would have been obvious to one skilled in the art at the time of the invention to combine the system of Doering with multiple fluorescent tube lamps in order to provide more light to the system.

[claim 6]

Doering teaches the use of a linear imager producing one line of pixels at a time (Col 5 Lines 16-55). As cited, Doering uses a CCD image sensor to transfer a row of 2048 elements in parallel to a video sensor board.

[claim 7]

Doering does not teach a method of adjusting the height of the support plate. Wertz teaches the use of adjustable feet to provide for height adjustment in the production line (Col 6 Lines 38-42). It would have been obvious to one skilled in the art at the time of the invention to combine the system of Doering with the adjustable feet of Wertz in order to adjust the height of the system to work in a production line.

[claim 8]

Doering teaches the scanning of only the workpiece in order to reduce scanning time (Col 4 Lines 20-23). It would have been obvious to one skilled in the art at the time to use the method of Doering to reduce the scanning time.

Claims 4,5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,184,217 to Doering in view of US Patent 5,132,791 to Wertz et al as applied to claim 1 above, and further in view of US Patent 4,711,579 to Wilkinson.

[claim 4]

Doering teaches the use of a carriage assembly containing a screw type method of moving the camera left to right (Col 4 Lines 5-8, Fig. 1). Doering teaches the use of a rack and pinion gear interface to move the camera back and forward (Col 3 Lines 66-68, Fig. 1). Doering does not teach using a screw type method to move the camera back and forward. Wilkinson teaches the method of using a screw type method to move the camera back and forward in a continuous linear movement (Col 3 Lines 32-42, Fig. 1). It would have been obvious to one skilled in the art at the time of the invention to replace the rack and pinion gear interface of Doering with the screw type method of Wilkinson in order to provide a continuous linear movement.

[claim 5]

Doering teaches the use of an optical sensor to control the position of the carriage but does not explain how the sensor determines location (Col 4 Lines 24-45). Doering does not teach the use of tape encoders for determining X and Y location of the carriage. Wilkinson teach the use of a calibration strip (tape) to provide position information to which the optical sensor assemblies are responsive (Col 3 Lines 22-25). It would have been obvious to one skilled in the art at the time of the invention to combine the optical sensor of Doering with the calibration strip of Wilkinson in order to provide position information to which the optical sensor assemblies are responsive.

[claim 9]

Doering teaches the use of screw type movement. Doering does not teach the use of dampers. Wilkinson teaches the use of twin ball bushing pillow blocks (dampers) as part of the construction of the carriage for use with screw type movement (Col 3 Lines 26-42, Fig. 1). It would have been obvious to one skilled in the art at the time of the invention to combine the carriage of Doering with the pillow blocks of Wilkinson in order to construct a carriage for use with screw type movement.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,184,217 to Doering in view of US Patent 5,132,791 to Wertz et al and US Patent 4,711,579 to Wilkinson as applied to claim 9 above, and further in view of US Patent 4,417,260 to Kawai et al.

[claim 10]

Doering, Wertz, and Wilkinson do not teach the motion damping means including means for tuning to damp out specific frequencies. Kawai teaches the use of insulating the vibration of a feeding/discharging mechanism from the recoding process in order to prevent distortion, cyclic unevenness of the density, and displacement of a recorded image (Col 2 Lines 5-12). Kawai further teaches that springs are used as a vibration insulator (Col 1 Lines 55-68, Fig. 1). Kawai teaches that when a spring is used as a vibration insulator, the spring constant is selected with respect to the mass of said frame structure so that the frequency of the vibration of the frame is sufficiently lower than the natural frequency of the frame structure itself (Col 1 Lines 67-68 and Col 2 Lines 1-4). It would have been obvious to one skilled in the art at the time of the invention to combine the system of Doering, Wertz and Wilkinson with the vibration insulator of Kawai in order to adjust the vibration insulator (spring) so the frequency of the vibration of the frame is sufficiently lower than the natural frequency of the frame structure.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,184,217 to Doering in view of US Patent 5,132,791 to Wertz et al as applied to claim 1 above, and further in view of US Patent 6,359,686 to Ariglio et al.

[claim 11]

Doering and Wertz teach the use of a screw type method of moving. Doering and Wertz do not teach the method of using pulleys and belts for moving. Ariglio teaches the moving a scanning mechanism using a driven motors, such as a belt and pulley method (Col 3 Lines 10-18, Fig. 4). It would have been obvious to one skilled in the art at the time of the invention that screw type and belt/pulley type methods are both

Art Unit: 2613

driven motors and are equivalent (Official Notice). It would have been obvious to one skilled in the art at the time of the invention to use the belt/pulley type method of Ariglio with the inspection system of Doering and Wertz because screw type and belt/pulley type methods are equivalent.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erick Rekstad whose telephone number is 703-305-5543. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on 703-305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

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